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LSI LOGIC CORPORATION 1621 BARBER LANE MS: D-106 LEGAL MILPITAS, CA 95035			MOORE, IAN N	
			ART UNIT	PAPER NUMBER
			2661	8

DATE MAILED: 02/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/687,199

Applicant(s)

CZAJA ET AL.

Examiner

Ian N Moore

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-21 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Drawings

1. Figures 1, 2 and 3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claims 3 and 12 are objected to because of the following informalities: Claims 3 and 12 recite acronym "T_Add" (in claim 3-line 5, and claim 12-line 10) and "PSMM" (claim 3-line 8, and claim-12 line 8). A full meaning/expression of theses acronyms must be recited in these claims.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1, 12 and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- The term "**different generations...**" recites in claim 1,12 and 21, which renders the claim indefinite. The term " different generations..." is not defined by the claim, and

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it is unclear what are the different generations of CDMA. In particular, it is unclear whether the different generations mean the generation between 1st generation, 2nd generation, 2.5th generation, and/or 3rd generation. The specification does not clearly provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably appraised of the scope of the invention.

- The term "**reverse link...**" in recites claim 1 (line 16) and claim 12 (line 12) and claim 21 (line 16), which renders the claim indefinite. These terms are not defined by the claim, and it is unclear what link is the reverse link. In particular, it is unclear whether "the reverse link" means, the reverse link from the mobile unit to the base station (i.e. when viewing from the base station to the mobile unit as the forward link), or the reverse link from the base station to the mobile unit (i.e. when viewing from the mobile unit to the base station as the forward link). The specification does not clearly provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably appraised of the scope of the invention.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 1, 2, 4-7, 9, 11-18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Czaja (U.S. 2002/0037726A1) in view of Chheda (U.S. 6,181,738).

Regarding Claims 1 and 21, Czaja'726 discloses a computer program on a general purpose computing device (see page 5, method/logic/computational claims for the CDMA cellular radiophone system) to execute a method of initiating a reverse link handoff (see page 4, paragraph 35-36; General handoff) in a CDMA communication system (see FIG. 1, CDMA IS-95 and IS-2000 Networks) having a plurality of base stations in communication (see FIG. 12 BS1 (Base Station 1) 122 and BS2 123) with at least one mobile station (see FIG. 12, MS 124),

wherein each base station transmits at least one associated and corresponding pilot channel that uniquely identifies the base station (see page 1, paragraph 6; note that each base station transmits un-modulated pilot signals/PN codes for identification), and

wherein the serving base station (see FIG. 1, active base station B 121 in IS-95-B network) and the target base station (see FIG. 1, candidate base station A 141 in IS-2000 network) operate in accordance to different generations of CDMA systems (see FIG. 1, note that IS-95-B is 2G network and IS-2000 is 3G network), and the method comprising the step of:

a) a first set of instructions for monitoring a first parameter obtained from the serving base station, wherein the first parameter that is associated with the serving base station (see page 3, paragraph 41; note that mobile unit measures signal strength from active base station);

b) a second set of instructions for monitoring a second parameter obtained from the target base station, wherein the second parameter, that is associated with the target base station (see page 3, paragraph 41; note that mobile station measures signal strength from candidate base station);

c) a third set of instructions for determining if the first parameter is less than or equal to the sum of the second parameter (see page 3, paragraph 42-49; note that each measurement is compared to the threshold. The threshold must be set at least equal to minimum acceptable signal strength (i.e. setting threshold value to existing signal strength of the active BS). Also, determining step includes whether active BS signal strength is lesser or equal to the candidate BS signal strength. Thus, comparing the measured results with the threshold means comparing the measured signal strength values to existing active BS signal strength in order to determine the signal strength for the handoff.)

d) returning to step (a) if the first parameter is not less than or equal to the sum of the second parameter (see page 3, paragraph 42-49; note that when the measured value is less than or equal the threshold (i.e. the active BS signal strength is greater or equal to candidate BS signal strength), then the mobile unit must continue to measure other neighbors from the neighbor list sine the measured signal strength does not meet the requirement for the handoff); and

e) a fourth set of instructions for initiating a reverse link intergenerational hard handoff between the serving and target base stations (see page 4, paragraph 58; a handoff between two generations of CDMA) if the first parameter is less than or equal to the sum of the second parameter (see page 4, paragraph 54-61; note that when the candidate BS signal

strength is greater than the threshold (i.e. signal strength of the active BS), the handoff is initiated. Since the handoff is initiated by the mobile unit from the reverse link and performs by BS; thus it is a reverse link hard handoff.)

Czaja'726 does not explicitly disclose a) obtaining wherein the first parameter comprises the value of E_b/N_t ; b) obtaining wherein the second parameter comprises the value E_b/N_t , that is associated with the target base station; c) determining if the first parameter is less than or equal to the sum of the second parameter and an offset; and d) initiating and performing the selections and/or adjustments if the first parameter is less than or equal to the sum of the second parameter and the offset.

However, the above-mentioned claimed limitations are taught by Chheda'738. In particular, Chheda'738 teaches

a) obtaining wherein the first parameter comprises the value of E_b/N_t (see FIG. 1, Measure E_b/N_o 105; see col. 2, lines 10-34; note that the value of E_b/N_o is the received power bit energy to noise density);

b) obtaining wherein the second parameter comprises the value E_b/N_t , that is associated with the target base station (see FIG. 1, Target E_b/N_o 110; see col. 2, lines 10-34; note that the value of E_b/N_o is the target received power bit energy to noise density);

c) determining if the first parameter is less than or equal to the sum of the second parameter and an offset (see col. 8, lines 1-42; $E_b/N_o = (E_b/N_o)_{tar} - \Delta$ (i.e. $(E_b/N_o)_{tar} = E_b/N_o + \Delta$); also see col. 4, lines 1-32, col. 2, lines 35-56; note that delta value (i.e. FER rate change) is determined by comparing the measured E_b/N_o with target $(E_b/N_o)_{tar}$. Delta is used to adjust/define the transmission rate according to GOS (Grade of service)).

d) initiating and performing the selections and/or adjustments if the first parameter is less than or equal to the sum of the second parameter and the offset (see col. 2, lines 35-56 and col. 5, line 1-20; note that quality frame selection between two base stations during handoff is performed according to the comparison results from step C.)

Note that Czaja'726 teaches the signal strength measurement of active and candidate base station in order to perform a handoff. Chheda'738 teaches measuring the value of E_b/N_0 , comparing them to the target value, determining the base station that sends quality frame during handoff, and utilizing delta as the quality adjustment/selection factor. Thus, Czaja'726 system can be modified to perform a handoff based upon the E_b/N_0 and delta per Chheda'738 teaching. In view of this, having the system of Czaja'726 and then given the teaching of Chheda'738, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Czaja'726, by measuring the value of E_b/N_0 , comparing them to the target value, determining the base station that sends quality frame during handoff, and utilizing delta as the quality adjustment/selection factor, as taught by Chheda'738. The motivation to combine is to obtain the advantages/benefits taught by Chheda'738 since Chheda'738 states at col. 4, line 1-4 and col. 5, line 15-20 that such modification would optimize the reverse link power control during rapid rate changes and provide a way to adjust/select quality frame during the handoff.

Regarding Claim 12, Czaja'726 discloses an apparatus for initiating a reverse link handoff (see page 4, paragraph 35-36; General handoff) in a CDMA communication system (see FIG. 1, CDMA IS-95 and IS-2000 Networks) having a plurality of base stations in

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communication (see FIG. 12 BS1 (Base Station 1) 122 and BS2 123) with at least one mobile station (see FIG. 12, MS 124),

wherein each base station transmits at least one associated and corresponding pilot channel that uniquely identifies the base station (see page 1, paragraph 6; note that each base station transmits un-modulated pilot signals/PN codes for identification), and

wherein the serving base station (see FIG. 1, active base station B 121 in IS-95-B network) and the target base station (see FIG. 1, candidate base station A 141 in IS-2000 network) operate in accordance to different generations of CDMA systems (see FIG. 1, note that IS-95-B is 2G network and IS-2000 is 3G network) comprising:

a) means for sending a PSMM to the serving base station and adding the target base station to an active set when a first parameter, E_c/I_o , associated with the target base station is greater than a T -Add threshold parameter (see page 4, paragraph 57-59; note that mobile unit sends PSMM to active base station when E_c/I_o is larger than T_ADD threshold); and

b) means for initiating a reverse link intergenerational hard handoff, wherein the hard handoff initiation means is responsive to the serving base station, and wherein the hard handoff initiation means initiates a reverse link intergenerational hard handoff when the serving base station transmits an intergenerational handoff direction message to the mobile station and when a second parameter, associated with the serving base station is less than or equal to a sum of a third parameter, associated with the target base station (see page 4, paragraph 54-60; note that the active base station instructs the mobile unit to handoff. Then after, Mobile unit begins to communicate with candidate BS. Mobile unit also performs additional inter-generational handoff requirements by tuning dynamically to each BS,

determining the energy when the signal is too weak to be of any use (i.e. when to drop), and comparing the energy value of BSs to IG_T_DROP and /or IG_DROP_TSHD. When active BS energy is weaker than IG_DROP_TSHD, then the handoff occurs. Note that each energy value is compared to the threshold IG_DROP_TSHD. The threshold must be set at least equal to minimum acceptable signal strength (i.e. setting threshold value to existing signal strength of the active BS). Thus, comparing the energy values with the thresholds means comparing the energy values to existing active BS in order to determine the handoff. Since the handoff is initiated by the mobile unit from the reverse link and performs by BS; thus it is a reverse link hard handoff.)

Czaja'726 does not explicitly disclose a wherein determining a second parameter, E_b/N_t , is less than or equal to a sum of a third parameter, E_b/N_t and an offset.

However, the above-mentioned claimed limitations are taught by Chheda'738. In particular, Chheda'738 teaches wherein determining a second parameter, E_b/N_t (see FIG. 1, Measure E_b/N_o 105; see col. 2, lines 10-34; note that the value of E_b/N_o is the received power bit energy to noise density), is less than or equal to a sum of a third parameter, E_b/N_t (see FIG. 1, Target E_b/N_o 110; see col. 2, lines 10-34; note that the value of E_b/N_o is the target received power bit energy to noise density) and an offset (see col. 8, lines 1-42; $E_b/N_o = (E_b/N_o)_{tar} - \Delta$ (i.e. $(E_b/N_o)_{tar} = E_b/N_o + \Delta$); also see col. 4, lines 1-32, col. 2, lines 35-56; note that delta value (i.e. FER rate change) is determined by comparing the measured E_b/N_o with target $(E_b/N_o)_{tar}$. Delta is used to adjust/define the transmission rate according to GOS (Grade of service))

Note that Czaja'726 teaches the signal strength measurement of active and candidate base station in order to perform a handoff. Chheda'738 teaches measuring the value of E_b/N_0 , comparing them to the target value, determining the base station that sends quality frame during handoff, and utilizing delta as the quality adjustment/selection factor. Thus, Czaja'726 system can be modified to perform a handoff based upon the E_b/N_0 and delta per Chheda'738 teaching. In view of this, having the system of Czaja'726 and then given the teaching of Chheda'738, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Czaja'726, by measuring the value of E_b/N_0 , comparing them to the target value, determining the base station that sends quality frame during handoff, and utilizing delta as the quality adjustment/selection factor, as taught by Chheda'738. The motivation to combine is to obtain the advantages/benefits taught by Chheda'738 since Chheda'738 states at col. 4, line 1-4 and col. 5, line 15-20 that such modification would optimize the reverse link power control during rapid rate changes and provide a way to adjust/select quality frame during the handoff.

Regarding claim 2, the combined system of Czaja'726 and Chheda'738 discloses all aspects of the claimed invention set forth in the rejection of Claim 1 as described above, and Czaja'726 further teaches wherein the step (b) further comprises obtaining a target base station E_c/I_o , value associated with the target base station. (see page 4 , paragraph 35 and 42; note that mobile unit acquires the candidate BS's value, which is a ratio of received pilot energy, E_c , to the total received spectral density, I_o).

Regarding claims 4 and 13, the combined system of Czaja'726 and Chheda'738 discloses all aspects of the claimed invention set forth in the rejection of Claims 1 and 12 as described above. Czaja'726 does not disclose offset/delta/adjustment value; that it is clear that the offset/delta/adjustment value is zero. Chheda'738 further teaches the offset (see col. 3, lines 30 to col. 4, lines 34; note that delta value is variable to adjust/define the Eb/No value.) Also note that offset/delta value can be equal to zero if there is high Grade of service per Czaja'726 teaching. Thus, the combined system of Czaja'726 and Chheda'738 further teaches the offset is zero.

In view of this, having the system of Czaja'726 and then given the teaching of Chheda'738, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Czaja'726, by utilizing zero offset value, as taught by Chheda'738, for the same motivation as stated above in Claims 1 and 12.

Regarding claims 5 and 15, the combined system of Czaja'726 and Chheda'738 discloses all aspects of the claimed invention set forth in the rejection of Claims 1 and 12 as described above, and Chheda'738 further teaches wherein the offset is based on a Frame Error Rate (FER) parameter (see col. 3, lines 30-60; note that delta value is the quality (GOS) variable according to FER.)

In view of this, having the system of Czaja'726 and then given the teaching of Chheda'738, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Czaja'726, by utilizing the delta value according to FER, as taught by Chheda'738, for the same motivation as stated above in Claims 1 and 12.

Regarding claims 6 and 17, the combined system of Czaja'726 and Chheda'738 discloses all aspects of the claimed invention set forth in the rejection of Claims 1 and 12 as described above, and Chheda'738 further teaches wherein the offset is based on a Quality of Service (QoS) parameter (see col. 2, lines 14-20; note that delta value is the quality value according to GOS (grade of service).)

In view of this, having the system of Czaja'726 and then given the teaching of Chheda'738, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Czaja'726, by utilizing the delta value according to GOS, as taught by Chheda'738, for the same motivation as stated above in Claims 1 and 12.

Regarding claims 7, 9, 11, and 18 the combined system of Czaja'726 and Chheda'738 discloses all aspects of the claimed invention set forth in the rejection of Claims 1 and 12 as described above, and Czaja'726 further teaches wherein the step (e) of initiating a reverse link handoff is autonomously performed by the mobile station (see page 4, paragraph 58; note that the handoff is initiated by the mobile unit from the reverse link and performs by BS.)

Regarding claim 14, the combined system of Czaja'726 and Chheda'738 discloses all aspects of the claimed invention set forth in the rejection of Claim 12 as described above. Czaja'726 teaches measuring/obtaining signal strength values from the target base station and the servicing base station. Chheda'738 further teaches wherein the offset is a difference

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between the third parameter, Eb/Ni, and the second parameter, Eb/Nt (see col. 8, lines 1-42; $Eb/No = (Eb/No)_{tar} - \Delta$ (i.e. $\Delta = Eb/No - (Eb/No)_{tar}$)).

In view of this, having the system of Czaja'726 and then given the teaching of Chheda'738, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Czaja'726, by defining the delta as the different between target value and received/measured value, as taught by Chheda'738, for the same motivation as stated above in Claim 12.

Regarding claim 16, the combined system of Czaja'726 and Chheda'738 discloses all aspects of the claimed invention set forth in the rejection of Claims 12 and 15 as described above, and Chheda'738 further teaches wherein the FER parameter comprises a 1 % FER (see col. 3, line 30-44; note that FER rate operation at 1-2% target/threshold rate).

In view of this, having the system of Czaja'726 and then given the teaching of Chheda'738, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Chheda'738, by setting lower FER rate for higher quality traffic, as taught by Chheda'738, for the same motivation as stated above in Claim 12.

5. Claims 8, 10, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined system of Czaja'726 and Chheda'738 as applied to claims 1 and 12 above, and further in view of well established teaching in art.

Regarding claims 8, 10, 19 and 20, the combined system of Czaja'726 and Chheda'738 discloses all aspects of the claimed invention set forth in the rejection of Claims 1 and 12 as described above, and Czaja'726 further teaches wherein the handoff is an intergenerational handoff.

Neither Czaja'726 nor Chheda'738 explicitly discloses wherein the handoff is an intergenerational soft handoff comprising a forward link soft handoff and a reverse link hard handoff, and wherein the handoff is an intergenerational hard handoff comprising a forward link hard handoff and a reverse link hard handoff.

However, the above-mentioned claimed limitations are well known in the art of intergenerational handoff. In particular, the handoff is an intergenerational soft handoff comprising a forward link soft handoff and a reverse link hard handoff, and the handoff is an intergenerational hard handoff comprising a forward link hard handoff and a reverse link hard handoff. Note that Czaja'726 teaches a mobile unit initiating a handoff by utilizing the signal strength, and base station instructs the mobile to handoff. In addition, the mobile unit performs additional requirements during a handoff and before the completion. Also, it is well known in the art of CDMA that either the base station and/or the mobile unit can perform the handoff (i.e. intergenerational soft handoff and intergenerational hard handoff).

In view of this, having the combined system of ACzaja'726 and Chheda'738, then given the well established teaching of the art, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Czaja'726 and Chheda'738, by providing a various of intergeneration handoffs, as taught by well established teaching in the art. The motivation to combine is to obtain the

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advantages/benefits taught by well established teaching in the art that since Czaja'726 states at see page 1, paragraph 9 that such modification would provide backward compatibility with the 2G system at the signaling call processing level.

Allowable Subject Matter

6. **Claim 3** is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian N Moore whose telephone number is 703-605-1531. The examiner can normally be reached on M-F: 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 703-305-4798. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ian N Moore
Examiner
Art Unit 2661

INM
2/3/04


RICKY NGO
PRIMARY EXAMINER